

**Ex. 11**

**Nancy Mathiowetz Rebuttal Opinion Summaries**

## II. SUMMARY OF OPINIONS

8. The design of the two surveys offered by Hanssens suffers from multiple conceptual and methodological flaws that render them unreliable.
9. Hanssens' surveys fail to align with either his own stated goals for the research or with Apple's economists' analysis of his results. As explained below, his surveys are meaningless in assessing respondents' *current* ability and willingness to switch to other devices because they ask about respondents' use of or access to other electronic devices over the last 12 months. In addition, Hanssens failed to ask respondents any questions at all about the circumstances under which they would actually switch to another electronic device. Therefore, his survey results do nothing to support Apple's economists' purported market definition exercise, which assesses consumers' ability and willingness to make a substitution if the terms at which the products or services at issue are offered worsen (*e.g.*, if their price increases or their quality decreases). *See* Section III.A.
10. Even if Hanssens' surveys were properly designed to address his research questions, they suffer from multiple fatal methodological flaws. Hanssens' survey questions are riddled with undefined and ambiguous words and concepts, including questions about devices that respondents have "regularly" used and that have been "available" to them in the last 12 months. He asserts that these ambiguities in his survey instruments provide respondents with "flexibility" in interpretation and that this is advantageous. I strongly disagree with Hanssens' assertion. There is no way to determine how respondents interpreted these words and, as discussed below, Hanssens failed to adequately pretest the questionnaires to ensure respondent understanding. Hanssens' survey questions are also long and complex, which may have further impacted comprehension issues among respondents. These ambiguities

introduce random error into Hanssens' results and thus render his data unreliable.

*See Sections III.B-III.D.*

11. Because of the ambiguity of Hanssens' survey questions, coupled with the fact that he failed to adequately pretest his survey instruments, I directed and oversaw a team at The Brattle Group in conducting qualitative interviews to evaluate respondent understanding of the questions in Hanssens' surveys. These interviews confirmed a high level of variability in the way respondents interpret the terms "regular use" and "available to use," particularly with respect to gaming. *See Section IV.*
12. In addition to the flaws in the design of the questionnaires, Hanssens failed to properly operationalize his target populations of interest for his two surveys. Specifically, use of the ambiguous phrases "regularly use" and "available to use" in his screener questions combined with an irrelevant 12-month reference period may have caused Hanssens to include respondents in his sample that were not in his target population. Because of this, his samples may not reflect his target populations, and therefore his estimates may be inapplicable to those target populations. *See Section V.*
13. There were also several flaws in the implementation of Hanssens' surveys that impact the reliability of his data. For instance, although Hanssens pretested his survey instruments, his pretests were inadequate to ensure that respondents understood his questions. Specifically, rather than seek to understand how respondents interpreted the terms "regularly use" and "available to use", he simply asked yes/no questions—in violation of survey pretesting best practices—about whether respondents thought the terms were clear. Moreover, Hanssens failed to revise his survey instruments despite multiple issues raised by the pretests, including

- specific feedback from respondents that “regular use” and “available to use” were unclear. *See Section VI.A.*
14. Hanssens also failed to assess potential nonresponse bias among his survey respondents. Such an analysis may have revealed that the propensity to take and complete his surveys was more likely for respondents using desktops and laptops than those using iOS devices. Given that respondents who took the surveys on desktops or laptops necessarily use non-iOS devices in addition to using an iOS device, this may have resulted in an overestimate of the use of or access to “other electronic devices.” *See Section VI.B.*
15. Further, Hanssens did not adequately assess the impact that respondents who sped through his surveys may have had on his results. For example, [REDACTED] respondents completed the iOS App Survey [REDACTED] meaning that they spent, on average, [REDACTED] on each of the screens of the survey. In addition, [REDACTED] respondents for the iOS Fortnite survey completed the survey in under [REDACTED]—speeders per Hanssens’ own definition—yet they were not removed from his analysis. This is a fast pace to take any survey of this length, but coupled with the ambiguous wording in Hanssens’ questions and the complicated and long syntax, this calls into question whether respondents were paying adequate attention to the survey questions and their responses. *See Section VI.C*
16. These flaws in Hanssens’ survey design and implementation are evident in his results, which in some instances are patently inconsistent with independent data sources. For example, there is a large discrepancy in the percentage of Hanssens’ respondents who self-reported that they “regularly used [] in the last 12 months” Microsoft Windows smartphones. We know from publicly available information [REDACTED] that hardly anyone uses these Microsoft smartphone devices.

[REDACTED]

Therefore, this high level of endorsement of Windows-based phones should have indicated to Hanssens that the respondents did not understand the question, that the question was poorly worded, or that respondents simply were not paying attention. Instead of noting this important data point that is independently verifiable as inaccurate, Hanssens appears to have ignored it. *See* Section VII.

17. In light of the fatal design flaws in Hanssens' questionnaires coupled with his failure to properly operationalize his target population and implement the surveys, it is my opinion that the resulting data provide neither a reliable nor valid estimate of access to non-iOS devices within Hanssens' target population of iOS users.